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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/645,481	08/22/2003	Koichi Shimizu	826.1889	3864

21171 7590 07/13/2007
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EXAMINER

PATEL, SHAMBHAVI K

ART UNIT	PAPER NUMBER
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2128

MAIL DATE	DELIVERY MODE
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07/13/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/645,481	Applicant(s) SHIMIZU, KOICHI	
	Examiner Shambhavi Patel	Art Unit 2128	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 April 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8, 17-25, 27, 28 and 30-32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8, 17-25, 27, 28 and 30-32 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on **18 April 2007** has been entered.

2. Claims 1-8, 17-24, 27-28 and 30-32 have been presented for examination. Claim 32 is newly added. Claims 9-16 have been cancelled.

Response to Arguments

3. In view of Applicant's amendments, the 35 U.S.C. 101 rejection of claims 17-24, 27 and 30 is withdrawn.

4. Applicant's arguments with respect to the 35 U.S.C. 102 rejection of claim 31 have been considered but are moot in view of the new ground(s) of rejection.

5. Applicant's arguments regarding the 35 U.S.C. 35 101 rejection of claims 1-8, 25, 28 and 31 and the 35 U.S.C. 102 and 103 rejections of 1-8, 17-25, 27-28 and 30, filed 18 April 2007 have been fully considered but they are not persuasive.

Regarding the 35 U.S.C. 101 rejection:

- i. **Applicant submits**, on page 6, that "claim 1 recites 'a generating unit generating analytical data...to the analysis apparatus' at lines 8-10 and it is submitted that generating data to an analysis apparatus is a tangible result" and "claim 31 recites 'integrating the type and parameters into a header for geometric data that includes mesh data and used in the analysis by the analytical program'... and it is submitted that integrating data for use by an analytical program is a tangible result."

The Examiner notes that **claim 1** recites “a generating unit generating analytical data...and outputting to the analysis apparatus.” The claim does not state what is outputted to the apparatus, it merely claims outputting to the analysis, and the Examiner maintains that this is not a tangible result. Similarly, **claim 31** recites “integrating the type and parameters into a header for geometric data used in the analysis by the analytical program and outputting to a storage unit.” The claim does not recite what is outputted to the program; it merely claims outputting to the program. Furthermore, integrating data “for use by an analytical program” is an intended use of the data, and does not necessitate sending the data to the analytical program and receiving the data within the analytical program. Thus, it is not a tangible result.

Regarding the 35 U.S.C. 102 and 103 rejections:

- ii. **Applicant submits**, on page 7, “With regards to pages 2-3 and 6-7 of Muuss, all that has been found is a description of how a typical CAD system operates and does not disclose “generating analytical data formed by at least the obtained analytical conditions and the geometric data.”

The Examiner notes **figure 2 and pages 6-8 of the Muuss reference**. The package disclosed in the prior art contains a broad set of analysis codes which access the same geometry database. The applications interface (**figure 2**) receives a request for a certain type of analysis for an object. It retrieves the geometric object from the geometric database, and then either interrogates the object or has the object interrogate itself to retrieve the necessary analytical data. This is all then combined into an “analysis output” which can then be sent to the analysis software.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

6. **Claims 1-8, 25, 28 and 31-32 are rejected under 35 U.S.C. 101** because the claimed invention is directed to non-statutory subject matter. The Examiner asserts that the current state of the claim language is such that a reasonable interpretation of the claims would not result in any useful, concrete or tangible product. The Examiner notes that **claim 1** recites “a generating unit generating analytical data...and outputting to the analysis apparatus.” The claim does not state what is outputted to the apparatus, it merely claims outputting to the analysis, and the Examiner maintains that this is not a tangible result. Similarly, **claim 31** recites “integrating the type and parameters into a header for geometric data used in the analysis by the analytical program and outputting to a storage unit” and **claim 32** recites “integrating the type and parameters with geometric data used in the analysis by the analytical program and outputting to a storage unit.” The claims do not recite what is outputted to the program; they merely claim outputting to the program. Furthermore, integrating data “for use by an analytical program” is an intended use of the data, and does not necessitate sending the data to the analytical program and receiving the data within the analytical program. Thus, it is not a tangible result. All other claims are rejected by virtue of their dependency.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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7. **Claim 1-3, 5, 7-8, 17-19, 21, 23-25, 27-28, 30 and 32 are rejected under 35 U.S.C. 102(b)** as being clearly anticipated by **Muuss ('Combinatorial Solid Geometry, Boundary Representations, and Non-Manifold Geometry')**.

Regarding claims 1 and 17:

Muuss discloses performing an analysis using geometric data to check characteristics of a structure represented by the geometric data, comprising a specifying unit specifying one or more types of analyses from among plural types of analyses, an obtaining unit obtaining necessary conditions from among necessary analytical conditions of the plurality of analyses based on the specified types of analyses, and a generating unit generating analytical data formed by at least the obtained analytical conditions and the geometric data corresponding to the specified types of analyses (**'A History of Solid Modeling'** pages 2-3, figure 1; **'Interrogating a Solid Model'** pages 6-7). The prior art discloses performing solid geometric modeling so that a plurality of analyses may be performed on the model, such as structural analysis, and thermal analysis (**page 2**). This geometry model and material properties (*analogous to the analytical conditions*) are passed to analysis software that interrogates the model to obtain the necessary information. The results of the analysis (*analogous to the analytical data*) are then output to the user and analysis apparatus (**figures 1 and 2**). The applications interface (**figure 2**) receives a request for a certain type of analysis for an object. It retrieves the geometric object from the geometric database, and then either interrogates the object or has the object interrogate itself to retrieve the necessary analytical data.

Regarding claims 2-3 and 18-19:

Muuss discloses sending the geometric model and material properties (*analogous to analytical conditions*) to the analysis software. The software then extracts the properties needed, and combines them

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with the model to perform the analysis (**'Interrogating a Solid Model'** pages 6-7; figures 1 and 2; **'Thermal Predictions'** page 64).

Regarding claims 5 and 21:

Muuss discloses having analytical conditions include a contact setting of a part boundary (**'Non-Manifold Geometry'** page 21).

Regarding claims 7 and 23:

Muuss discloses having analytical conditions that include settings of a shell representation of parts geometric data and of part weights (**'Separation of Topology and Geometry'** pages 21-22).

Regarding claims 8 and 24:

Muuss discloses having analytical conditions that include a wavelength of an electromagnetic field in an electromagnetic analysis (**'Radar Predictions'** page 65).

Regarding claims 25 and 27:

Muuss discloses generating analytical data formed by the specified types of analysis (**figure 2**).

Regarding claims 28 and 30:

Muuss discloses obtaining a property value that is a necessary analytical condition in the specified analysis from a material database (**'Thermal Predictions'** page 64). When performing analysis on a model, the analysis software may extract the necessary parameters from the material properties that accompany the solid geometric model.

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Regarding claim 31:

Muuss discloses a method comprising:

- i. allowing a user to specify a type of analysis to be performed by an analytical program (figure 2) and necessary parameters for the analysis (page 64). In order to perform an analysis, it is necessary to select which type of analysis (the possible types are shown in figure 2) is to be performed, and this would inherently be done by the user. Also, the necessary geometry and material property information must also be inputted into the system.
- ii. integrating the type and parameters with geometric data used in the analysis by the analytical program and outputting to a storage unit (page 66). The information needed to perform an analysis (i.e. model, etc.) can be stored into a file and exported.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly

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owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claim 31 is rejected under 35 U.S.C. 103(a) as being unpatentable over Muuss ('Combinatorial Solid Geometry, Boundary Representations, and Non-Manifold Geometry').

Regarding claim 31:

Muuss discloses a method of analytical program set-up comprising:

- i. allowing a user to specify a type of analysis to be performed by an analytical program (figure 2) and necessary parameters for the analysis (page 64). In order to perform an analysis, it is necessary to select which type of analysis (the possible types are shown in figure 2) is to be performed, and this would inherently be done by the user. Also, the necessary geometry and material property information must also be inputted into the system.**
- ii. integrating the type and parameters with geometric data used in the analysis by the analytical program (page 66). The information needed to perform an analysis (i.e. model, etc.) can be stored into a file and exported.**

Muuss does not explicitly disclose integrating the data into a header, but the file would obviously include a header describing the contents of the file (see definition of "header" in Microsoft Computer Dictionary, 5th Edition)

9. Claim(s) 4, 6, 12, 14, 20, and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Muuss ('Combinatorial Solid Geometry, Boundary Representations, and Non-Manifold

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Geometry') in view of Tsap ('Efficient Nonlinear Finite Element Modeling of Nonrigid Objects via Optimization of Mesh Models').

Regarding claims 4, 6, 12, 14, 20, and 22:

Muuss does not explicitly disclose adjusting the mesh size to an optimum or specific value. **Tsap teaches** finite element analysis using CAD by first forming a mesh. Tsap teaches employing mesh controls (i.e. *trying to minimize the mesh size to an optimum value*) by performing local mesh refinement (**Tsap: section 3.6 'Mish Control Strategies'**). At the time of the invention, it would have been obvious to one of ordinary skill in the art to combine the teachings of Muuss and Tsap because by controlling the size of the mesh, better results are obtained because the mesh is more accurate (**Tsap: section 3.6 'Mish Control Strategies'**).

Conclusion

10. All claims are rejected.

11. **Examiner's Remarks:** Examiner has cited particular columns and line numbers in the references applied to the claims above for the convenience of the applicant. Although the specified citations are representative of the teachings of the art and are applied to specific limitations within the individual claim, other passages and figures may apply as well. It is respectfully requested from the applicant in preparing responses, to fully consider the references in their entirety as potentially teaching all or part of the claimed invention, as well as the context of the passage as taught by the prior art or disclosed by the Examiner. In the case of amending the claimed invention, Applicant is respectfully requested to indicate the portion(s) of the specification which dictate(s) the structure relied on for proper interpretation and also to verify and ascertain the metes and bounds of the claimed invention.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shambhavi Patel whose telephone number is (571) 272-5877. The examiner can normally be reached on Monday-Friday, 8:00 am – 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kamini Shah can be reached on (571) 272-2279. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SKP


KAMINI SHAH
SUPERVISORY PATENT EXAMINER

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